

Alternate Management System Review Checklist – Supplemental Comments Sheet

Submitted by Wärtsilä Water Systems Ltd

Guideline (G8) Specification (G8 section noted in brackets)	Comments (Applicant – black; USCG – red)
1.1 BWMS description, including diagrammatic drawing(s) showing typical pumping and piping arrangements (including a Bill of Materials and the specifications and standard(s) which it meets), sampling facilities for control and monitoring systems, operational outlets for treated water and waste streams [5.1]	Generic and schematic drawings and descriptions are contained in AMS Support documents (TA Files) → Vol. 1.0 Introduction (system descriptions) → Vol. 2.0 EC Design (drawings of full range of components) → Vol.3.0 EC Manuals (O&M manual of all system elements)
1.1.4 Control equipment stores data on monitored functions and conditions for at least 24 months; stored data can be displayed or printed for inspection. [4.13]	A removable media source (2GB USB or SD card) is used to store a minimum of 24 months data to achieve the requirements of G8 MEPC.174(58) para; 4.13. The storage device size was determined from operational experience where a typical 16 hour ballast operation required 500kB.
1.3 Audible and visual alarm signals in stations from which ballast water operations and ballast water management are controlled. [4.3]	Main Control Panel is installed in the vicinity of the equipment for local control. Repeat HMI can be supplied for remote installation (ECR/Bridge as required). Interface with the vessel can be provided as required. As standard the system is fitted with volt free contacts for outputting alarm status to the control room (medium and high priority) and the ability to be mode controlled from a remote panel. This can be upgraded to a remote HMI if preferred or integrated fully into the vessel control system.
1.11 BWMS is robust and suitable for working in the shipboard environment, with design, construction and materials, including electronic and electrical components, including a Bill of Materials and the specifications and standard(s) which it meet(s), adequate for intended service. [4.7.1]	Lloyds register were contracted by the Netherlands to evaluate the technical and design aspects of the Wärtsilä AQUARIUS® EC BWMS in accordance with the provisions of MEPC.174(58), G8 Moreover there are two submissions for design approval for LR and ABS respectively currently pending.
3.1 Complete application dossiers for IMO active substance basic and final approvals [Annex Part 1, 1.6.4]	The complete submission dossiers for both Basic and Final Approval are included with the current submission (see <i>CD1- AQUARIUS EC Basic Approval</i> and <i>CD2-AQUARIUS EC Final Approval</i>)
3.2 Adequate arrangements for storage, application, mitigation, and safe handling of any substances of a dangerous nature [4.2]	An evaluation of active substances has been carried out in accordance to the IMO G9 guidelines and followed the two stage review process marked by the Basic and Final Approval by the IMO GESAMP BWWC. The documentation includes a full Human exposure scenario evaluations (see CD2- AQUARIUS EC BWMS Final Approval → 3.0 Appendices-Confidential → Appendix 12)
4.3.6 Documentation that test cycles completed over at least six months. [Annex Part 2, 2.2.2.7]	Ship Board testing was carried out between February 2012 to February 2013.
4.3.8 2) Possible reasons for unsuccessful test cycle or failure of a cycle to meet D-2 Standard.	Throughout the formal testing of Wärtsilä AQUARIUS® EC BWMS there were no failed tests recorded. One shipboard test marked a Cycle 2 in the relevant report was considered invalid due to failure of uptake water conditions (biological content), to meet the G8 stipulated levels.
4.3.8 3) Scheduled maintenance;	No scheduled maintenance was undertaken in the test period of testing. The equipment functioned without issues and visual inspections for operational readiness were adequate.
4.3.8 4) Unscheduled maintenance and repair;	No Unscheduled maintenance in the test period as there were no failures of any components or damage recorded. Visual inspections only.

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